CHAPTER 10

ELECTRICITY ABROAD

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Working out how to cope with a different system of electricity can be a confusing part of an overseas move. Once you have been assigned to a specific post, contact the post directly to find out what you need to do. At some posts, plug adapters and multi-system appliances are less expensive than in the United States. Other posts provide a limited number of transformers along with housing. Some posts have unusual challenges, such as electric sockets with reversed polarity, or multiple voltages. General information is provided below to help you know which questions to ask. Try to double check facts, since the first person you contact may not know the whole story.

VOLTAGE AND FREQUENCY

Electricity in the United States, Canada, and much of the Western Hemisphere operates as 110 volt, 60 cycles-per-second (hertz, abbreviated Hz) alternating current (AC). The designation "110 volts" actually includes voltages up to 125. Much of the rest of the world operates on 220-volt electricity flowing at 50 cycles per second or hertz. Again, so-called "220-volt" electricity includes voltages up to 250.

Some dual-voltage appliances are built to operate in either of these systems. You can check this by looking at the small label usually found on the back of the appliance. A dual-voltage appliance will have gibberish such as: 125/250 V AC 50/60Hz. Some appliances switch automatically, while others require you to turn a selector to change voltage systems. Always unplug the appliance before changing the selector.

If your appliance can operate using either system, you are still likely to need plug adapters. You can purchase these from a travel supply store, or they may be available at post. (It is a good idea to purchase adapters at post if possible, since that way you will be sure that they fit the sockets in your new home). Make sure the adapters fit polarized plugs, the plugs with prongs that are slightly different sizes.

Be sure to explain the different voltages to anyone working in your home, carefully show domestic staff what must be plugged in where, and emphasize that they should not plug anything in if in doubt.

If your appliances are not dual-voltage, you have several options:

1. Sell or store the appliances and purchase new ones at the new voltage. Ask people at post whether to buy appliances before arriving or at post. If the electricity supply is very quirky, local appliances may make your life easier. On the other hand, they may be very expensive.

2. Purchase dual-voltage appliances. Again, check with post before making any purchases. Even if your television and VCR are dual voltage, they may not function in a country with a different television broadcasting system.

3. Take your appliances and run them on transformers. Find out if the embassy supplies transformers or if you should buy some. Transformers convert 220 to 400-volt electricity to 110 volts; however, they do not change the cycle frequency from 50 to 60 hertz. This does not matter for some appliances. Others, such as electric clocks, devices that rely on internal clocks to operate, appliances with automatic shutoff features, and microwave ovens may not function properly on the wrong frequency. You may need to replace these appliances. People departing post may be happy to pass on their locally adapted appliances; contact the CLO Coordinator for more information.

   Remember that the transformer must be large enough to handle the wattage of your appliances. To find out the wattage of appliances you plan to use, look for the small box printed on the back of the appliance. There will be a number followed by "W" or "A." "1500W" means that the appliance draws 1500 watts of electric current and will need a transformer of 1500 watts or more. "A" indicates amperes. To find the wattage of appliances marked with amperes, multiply amperes by voltage. For example, a fax machine marked "120V~ 50/60Hz 1.8A" has a wattage of 120 X 1.8 or 216 watts. Remember that you must add together the watts needed by all appliances that will be plugged in at the same time to find the size transformer needed. Transformers come in all sizes, from 50 watts on up. Smaller transformers are easily portable, but the larger ones are extremely heavy and difficult to move. Do not assume that you will be able to easily move your 1600-watt transformer from the kitchen to the living room whenever you want to play the electric piano!

Note: Very few locations in the world use direct current (DC), the type of electricity provided by batteries. Your AC appliances will not function on DC current.

ELECTRONIC EQUIPMENT

Fluctuations in power supply, common in many countries, can ruin electronic equipment. You may want to purchase a UPS (uninterrupted power supply) for your more expensive items. Be sure that the UPS can handle the total wattage of the appliances that will be plugged into it. Also be sure that the UPS is compatible with the local electricity or the transformer you will be using.

A voltage regulator may be recommended for computers, stereos, and televisions. The regulator should be larger than the rated capacity of your equipment and UPS because these may use more power to start up than the labels indicate. Not all regulators and UPS units are compatible; be sure to check. People at post who have learned from experience can best advise you as to what to purchase.

Surge suppressors may be helpful at some posts. However, remember that you may not be able to plug the surge suppressor into a transformer without wrecking both. Surge suppressors also may be sensitive to the difference in cycles. Again, consult your local post experts for the best advice.

SAFETY PRECAUTIONS

Electricity operating at 220 volts is much more powerful than that in the United States. Just about everyone knows correct safety precautions: Do not touch appliances with wet hands; do not use appliances in wet or damp places; unplug the appliance before handling or trying to repair; make sure appliances are properly grounded; keep appliances well away from the bathtub, and so on. Do not think that you can ignore these precautions as you might have done in the past (just ask the person who put a knife down a plugged-in toaster in Great Britain and blew out the power in the entire house). You should take special care to explain to your children the difference in voltages so that they do not plug equipment into the wrong voltage and cause appliance/electronic device damage.

Take specific precautions with transformers: Do not attach an appliance requiring more wattage than the rating of your transformer. When attaching a combination of appliances, the total wattage rating must not exceed the rating of the transformer. For instance, with a 1600-watt transformer do not use a toaster drawing 1100 watts at the same time as a waffle iron drawing 1100 watts. The total of such a combination would exceed the transformer rating by 600 watts, and your transformer would burn out. Do not purchase any type of transformer with exposed wiring. Buy from a reliable dealer only those transformers that conform to local safety standards. In addition, do not handle or move a transformer when it is plugged into a socket. Be sure you first disconnect the transformer. A 1600-watt transformer should never be used in an ungrounded socket or with an ungrounded plug. Finally, do not place your transformers on carpets or near curtains. They should always be kept dry and well ventilated. Transformers do produce heat, but if they are very hot to the touch something is wrong. An electrician should be able to determine if the problem is with the transformer or the appliance.

RESOURCES

Publication

Electric Current Abroad ($3.50)
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